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Forest Fires in Maine Values Involved

Control Measures Recommended
for Timberlands Outside the
Maine Forestry District

By
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U. S. Forest Service
1926

In cooperation with the Maine Forest Service

Forest Fires in Maine

VALUES INVOLVED

Control Measures Recommended for Timberlands Outside the Maine Forestry District

The forest fire situation in Maine is not alarming. In the Maine forestry district, the average area burned yearly in the last 23 years is 32,000 acres, or only one-third of one per cent of the total forested area of 10,000,000 acres; outside the Maine forestry district, the average area burned yearly in the last 22 years has been 10,320 acres, or one-fifth of one per cent of the total forested area of 5,000,000 acres.

(Table No. 1). Occasional years like 1903, 1908, 1921, and 1923 indicate the danger of great conflagrations at times of unusual hazard, a danger which will probably be largely overcome in time through a growing public interest in fire prevention.

CAUSES OF FOREST FIRES

Statistics for 1916-1924 inclusive (Table No. 1) show that during that period the causes of forest fires were as follows: lightning 5 per cent, railroads 13.1 per cent, camp fires and smokers 27.5 per cent, brush burning 10.6 per cent, incendiarism 1.3 per cent, lumbering 6.9 per cent, miscellaneous 5.6 per cent, and unknown 30 per cent. About 60 per cent of the fires arose from preventable causes, and it seems likely that if the origin of every fire were known the percentage in the preventable class would be nearer 90 than 60. Though the record of forest fires is comparatively a good one, the fact that so large a percentage is due to carelessness indicates the need for continued effort to prevent fires in order to avoid future conflagrations that may assume more serious proportions than those of the past. It is, of course, absolute folly, if not stupidity, to burn over timberland through carelessness or thoughtlessness; yet this is the cause of most forest fires. The thoughtlessly discarded burning match, cigarette and cigar stub, and the burning remnant of pipe tobacco, are some of the most prolific causes of woods fires. The motorists who drive

along the roads and unconsciously toss these firebrands into the leaves or grass beside the road and then spin along on their way are fully as much if not more of a menace than hunters, fishermen, and others tramping through the woods. The carelessly started fire burns just as fast as the incendiary fire, is fully as hard to extinguish, and causes as much loss.

WHAT IS AT STAKE

It is not alone the owner of the burned-over land who loses by forest fires, although he, of course, is most directly affected. He loses his timber, frequently his house or other buildings, and is often badly impoverished by his losses. The general public loses also; for nothing destroys wealth more completely than fire.

What does the town lose through a fire that kills timber? It loses trees that at the time of burning, or after a few years' growth, would furnish jobs in the woods or at the mill. It loses a taxable resource. Timberlands in the organized towns are valued at \$5.00 to \$70.00 an acre, depending on the growth. When they are cut over clean or burned until worthless, the assessed value often drops to \$1.00 to \$3.00 an acre. Where the timber is a part of the farm, it is generally bunched in with the remainder of the farm land and a flat value put on all the land. Nevertheless, a heavy loss of timber due to fire is often reflected in a reduced valuation for the entire farm property. The community thus loses in the assessed valuation of the property, which simply means that the reduced tax on the property in question will have to be made up by an increase on other property in the town.

In addition to this direct property loss, there are the less easily measured losses of game and other birds destroyed while on their nests or while brooding their young which are too small to escape by flight, wild animals killed or fearfully burned, fish literally roasted in small streams, as is often attested by the floating dead fish after a fire, soils burned out or so impoverished that they subsequently support only a scrubby growth of gray birch, pitch pine, fire cherry, or popple, and all too commonly the loss of one or more human lives.

Not only is wealth, represented by timber and other property, destroyed, but the labor and funds expended in suppressing the fires are creating nothing of value; these might much better be

employed in building roads, in growing crops, or in some other form of productive employment. It is a reflection on the public intelligence of any state that large funds should have to be expended in the prevention, and more particularly in the suppression, of forest fires due to preventable causes. The relatively small number of forest fires in the State of Maine indicates that the public in general is fairly well alive to the need for care against forest fires, or that the natural climatic and forest conditions are not generally favorable to them. It is well that this is true, for the forest wealth of Maine and the industries dependent upon it are of tremendous economic importance.

STANDS AND GROWTH OF TIMBER

Recent authentic figures on the stands of timber in the State are not available. Local estimates place softwoods at about 60 million cords and the hardwoods at 10 to 30 million cords, depending on the proposed degree of utilization. Local estimates also place the growth per year of softwoods at $2\frac{1}{2}$ per cent to 3 per cent of the present volume. These are merely estimates, and there is no substantial agreement among timber owners as to what are reliable figures. One large company, for instance, estimates its growth of softwoods at $1\frac{1}{2}$ per cent of the stand of timber on its holdings. To offset growth, of course, there is the loss due to windthrow and fires, and the still greater loss in spruce and fir stands due to the spruce budworm. It has been estimated that fully 40 per cent of the old stands of spruce and fir have been killed by this insect. Though the stand and rate of growth of timber in the State are not definitely known, it is known that 15 million acres, or 78 per cent of the total land area of the State, is in forest growth of some character.

THE TIMBER INDUSTRY*

Maine's industrial progress has been very largely due to its timber resources. The number of manufacturing establishments in the timber industry, the people given employment by them, the salaries and wages paid, and the value of the product are about one-third the aggregate of all the industries of the State. The

*For a full discussion of the timber situation in Maine, the reader is referred to Bulletin No. 2 of the Maine Forest Service, Augusta, Maine, entitled, "The Forests of Maine," published in 1924.

capital invested in the industry is \$182,400,000, or 43½ per cent of all capital invested in manufacturing industries of the State. Rough forest products supply more than two-fifths of the railroad tonnage originating in Maine; and one-fourth of all the pulpwood cut in the United States comes in a normal year from the Maine forests.

THE TIMBER INDUSTRY VERSUS FARMING

Farming is an important industry in Maine. No one would decry the fame and nationwide importance of Maine's yearly crop of potatoes, nor of her expanding blueberry industry; yet, the value of the product of the wood-using industries of the State is almost one-third more than that of all farm crops, even when the forest products cut on the farms are included in the farm crops.

Moreover, the use of land for agricultural purposes appears to be on the decrease. The census figures of 1920 show 12,000 fewer farms and 800,000 acres less land in farms than in 1910. Lands given up for agriculture and permitted to be idle revert to timber in the course of a few years. In the generation preceding the present, some towns in Maine were so highly developed agriculturally that the population was apprehensive of a shortage in the fuelwood supply, wood being the only fuel burned. Today, the old farms in these towns are largely abandoned and grown up to woods. One organized town has recently relinquished its town organization and reverted to the "wild land" or unorganized condition.

Timber reproduces itself naturally and fairly rapidly on lands cut over at all conservatively; and great quantities of hardwoods of small present but great potential value exist. It appears that a large proportion of Maine's land area is destined to grow timber and that the prosperity of the State will be closely tied up with its forest resources in the future, as it has been in the past.

TIMBERLAND OWNERSHIP

The greater part of the timberland in the forestry district and about two million acres outside the district are owned or controlled by the so-called "large land owners." Some three million acres outside the district are held in relatively small tracts by

farmers or other small holders. The owners of timberland in the forestry district are, for the most part, well backed financially and are apparently in the timber business to stay. Taxes there are not so burdensome as to drive private owners out of the timber business. The average assessed values of lands in the unorganized towns of the Maine forestry district varied from \$4.778 per acre in Hancock County to \$12.81 in Oxford County in the year 1924; the tax, including state, county, and forest fire, levied on these wild lands averages about 10 mills.

RECREATION IN THE STATE

The call of the great outdoors is no stronger anywhere in the north than in Maine. By the hunter, the State has long been thought of as the home of the moose and deer; by the fisherman, as one of the last bits of choice territory in the northern United States where one may still land a salmon or a trout big enough to make more than a single mouthful; and by the lover of the primeval, as a land where the canoe and the canoe-man have not been entirely displaced by the auto and the liveried chauffeur. Supplementing this type of recreationist are the people, rapidly increasing in numbers, who travel the good roads of the State in order to view the mountains, lakes, and woods, and to stop for a week or so at some one of the many excellent camps or resorts; and the boys and girls who come to spend the entire summer at camps where they not only gain in health and strength among beautiful surroundings but are taught various kinds of useful handicraft by skilled instructors. The camp activity is growing by leaps and bounds and already represents an investment of several millions of dollars in housing facilities and equipment. The income of one town in Maine during 1925 from such camps within its boundaries was \$260,000. Just how much the urge of the outdoors is going to mean to the State of Maine, it is impossible to estimate. That recreational development there is only in its infancy is the general belief.

There is little need to point out that the forests are an essential feature of the recreational resource of the State. If the forests were to disappear, recreation seekers would turn to other regions.

WATER POWER

Some of the earliest water power developments in the United States were in Maine. [Upward of 1,600 lakes and ponds, aggre-

gating a total area of over 3,145 square miles, and more than 6,000 streams furnish a supply of energy, either developed or potential, that is estimated at about 2,000,000 horse power. The relation that forests bear to a steady dependable flow of water is well established. On well forested watersheds of streams a steady flow of water is fairly well assured under normal climatic conditions; on non-forested watersheds the flow is sporadic and varies from flood to drought conditions. The importance, therefore, of Maine's forests to water power already developed or that may be developed is evident.

HOW IS THE STATE PROTECTED AGAINST FOREST FIRES?

It is apparent that the timberlands of Maine are worth all the protection against forest fires that they are now receiving, and that this protection should be strengthened whenever and wherever necessary.

THE MAINE FORESTRY DISTRICT

In the Maine forestry district the State has an efficient organization of chief wardens, deputy wardens, patrolmen, and fire lookout observers, whose business it is to detect and suppress forest fires. The region is well covered by a system of 68 lookout stations and by a telephone system that is constantly being added to and improved. The wardens are well equipped with the ordinary fire-fighting tools, such as shovels, axes, grub hoes, pails, etc., and as fast as funds permit each chief warden is being equipped with a motor driven pump and hose, so that he can combat fire with water in quantity whenever possible. Some of the timberland owners are equipped with similar pumps, which are used to supplement those of the State. One of the large timberland companies has also expended large sums of money in the printing and distributing of educational posters warning against fires; it has also built and is maintaining many miles of first class metallic telephone lines and 175 miles of fine gravel roads through the wooded country. The telephone lines are an aid in reporting and in fighting fires; the roads give crews of fire-fighters quick access to some of the back country. Improvements could be made in the protective system of the Maine forestry district, but it is not the purpose of this paper to discuss

them. The situation outside the Maine forestry district will be taken up in more detail.

OUTSIDE THE MAINE FORESTRY DISTRICT

The Forest Fire Laws: Briefly, the more essential provisions of State forest fire laws applicable outside the forestry district are as follows:

1. The selectmen of the towns are ex-officio forest fire wardens and are authorized (but not required) to appoint one or more persons to act as deputy forest fire wardens.
2. Wardens may call upon any person in town for assistance in fighting fires.
3. Any person suffering from fire in consequence of the negligence or neglect of the selectmen to handle it may bring action against the town to recover damages.
4. Municipal officers are charged with prosecuting offenders who set fires in woodlands unlawfully.
5. The selectmen are required to report to the forest commissioner all fires one acre or more in extent.
6. A permit from the Forestry Department is required for the burning of any brush or slash or of blueberry land adjacent to forest growth, except where the ground is covered with snow.
7. Growth must be left uncut or the slash resulting from cutting must be disposed of within 50 feet of the right of way of a railroad or the center of the wrought portion of any public road.
8. Slash resulting from the construction and maintenance of railroads, highways, and power company telegraph or telephone lines must not be left upon the ground.
9. Persons cutting forest growth adjacent to woodlands owned by others must dispose of the slash within 50 feet of such woodlands.
10. It is forbidden to kindle a fire on another's land without consent of the owner.
11. All fires must be totally extinguished before they are left.
12. Persons hunting in woodlands must use non-combustible wads in firearms.

13. The governor may suspend the open season for hunting and fishing when there is grave danger of fires in the forest.
14. The forest commissioner may maintain a competent and efficient fire patrol along the right of way of any railroad when the adjacent forest lands are in a dry and dangerous condition. The cost must be borne by the railroad.
15. Railroads must keep their rights of way clear of inflammable material.
16. Locomotives must be provided with approved and efficient spark arresters and ash pans.
17. Railroads companies are forbidden to allow employees to deposit fire, live coals, or ashes upon their tracts in the vicinity of woodlands or land liable to be overrun by fires.

STRENGTH AND WEAKNESS OF THE ORGANIZATION

It will be noted that the system of suppression and law enforcement is practically dependent for its administration and effectiveness upon town officers (selectmen) or upon deputy fire wardens whom they are authorized, but not obliged, to appoint. This is a source both of strength and of weakness. If the selectmen are thoroughly in accord with the laws and their enforcement, are good organizers, energetic, and able to enlist the whole-hearted support of their local population in the prevention and suppression of forest fires, the system is nearly ideal. The forest fire problem can be handled better and more cheaply by an alert, interested, willing, and well-organized local population than by any other agency. Apparently it is handled efficiently by the local population in at least some portions of this region, because forest fires are few, have done little damage, and have been dealt with promptly, energetically, and whole-heartedly when they have occurred.

On the other hand, the system has decided elements of weakness, which may at any time result in forest fire catastrophies. Selectmen may be doctors, lawyers, merchants, or any citizens of a town. They are usually very busy with their personal and town affairs. They may know little about timber and less about preventing and suppressing forest fires. They may appoint a

deputy forest fire warden, but in many towns they do not do so. They may not take the forest fire problem seriously, which means that they will not be prepared to handle well any fires that occur. Further, they are elected to office, and naturally they are not prone to prosecute their fellow townsmen for any violations of the forest fire laws.

Town officers usually are concerned with only those forest fires that occur within the limits of the town. When a fire passes beyond those limits, and fires usually do not respect town limits, their efforts cease; it is then up to the officers of the adjoining town into which the fire has escaped to combat it. This creates hard feelings, especially between two towns of which one conscientiously attempts to handle fires in a vigorous, able manner and the other is slack about it. The slack town may let a fire run if it is near the boundary and headed toward an adjacent town.

Selectmen are constantly changing because of the political nature of the office, so that a man interested in the forest fire problem may be replaced by one who is not interested, and a falling-off in the efficiency with which forest fires are handled will result.

Reluctance to spend town money for necessary fire fighting is a still further weakness. Unless the timberland in a town is held by a comparatively large number of owners who insist on the selectmen meeting their obligation of suppressing fires which occur, there is often a tendency to be niggardly in hiring men or buying equipment, because this means the town must pay the bill, which, in turn, means that the money must be raised by taxation. The selectmen are thus in a quandary and are sometimes inclined to adopt half-way measures entailing as little expense as possible. Adjacent to the Maine forestry district, they commonly adopt the attitude that the timberland owners should take care of their own fires.

TO WHAT EXTENT ARE LAWS OBEYED AND ENFORCED?

A number of the State laws are not obeyed, largely because of ignorance of their existence; nor are they enforced by the selectmen. Laws too commonly disregarded are those prescribing that a permit must be obtained before brush is burned; that

brush resulting from timber cutting in the fifty-foot strip along roads or adjacent to timber owned by another must be cleaned up; that fires must not be built on the land of another without his consent; and that all fires one acre or more in extent shall be reported by the selectmen to the forest commissioner. The town authorities are lax in enforcing or carrying out these laws for reasons already explained.

An effort has been made by the office of the forest commissioner to enforce the law in respect to cleaning up slash caused by logging operations in the fifty-foot strip previously discussed. This effort has bettered conditions along the main roads, but it has accomplished little along the other roads. Along the back roads slash is abundant wherever there have been timber operations. Neither men nor money are available in the forest commissioner's office to bring about a full compliance with this law without greater cooperation from the selectmen of the towns.

It is a debatable question how far the forest commissioner's office should go in trying to enforce compliance with these laws, if local sentiment does not freely and fully aid and back up the action. If the selectmen of each town were fully in sympathy with the purpose of these laws, and would actively aid in enforcing them, there would be no insurmountable difficulties attending the task. The responsibility for law enforcement, under the present laws and appropriations at least, would still rest largely on the selectmen. The State would aid the selectmen to the extent that its appropriations would permit.

HOW CAN THE SITUATION IN REGION OUTSIDE OF THE MAINE FORESTRY DISTRICT BE IMPROVED?

FIRE OBSERVATION STATIONS

The seven fire observation stations which have been erected and which are maintained by the State in this region are giving good service and are spoken of very highly by the local people whom they serve. Parts of the region, however, are not adequately covered by the present situations. It would be good policy, create friendly feeling, be of educational value, and serve to protect Maine's timber if a few more such stations, perhaps not over six, were erected and maintained by the State. No recommendations are made as to locations. Local people have suggested certain hills, but the best locations can doubtless be worked out from United States Geological Survey sheets. The cost of erecting such stations would not be over \$1,500 each, manning them each year for six months \$600 each, and upkeep of station and telephone line not over \$50 a year. The funds required for six stations would be about \$9,000 for initial construction and \$3,900 yearly thereafter. If state funds are not available, Federal funds, supplied through the Clarke-McNary law could be devoted to this purpose.

TIMBERLAND OWNERS' ASSOCIATIONS

In Connecticut, forest protective associations made up of owners whose tracts of timberland range in area from 10 acres up have been organized for the purpose of giving more effective protection against fire than is afforded by the State organization. The members levy an assessment of four cents an acre or more upon themselves, and if the association represents 5,000 acres or more of timberland the State forester agrees to spend as much as four cents an acre in the protection of these lands. The funds are ordinarily used in hiring one or more patrolmen or in manning a fire observation station. These associations have not only been effective in getting better protection against

fire, but they have been instrumental in bringing offenders against the forest fire laws to trial. Their influence has been potent, particularly with some of the local officials charged with prosecuting the laws. Small associations of this character might be formed to advantage in some sections of Maine where conditions seem to call for them.

DISTRIBUTION OF SMALL FOREST TREES FOR PLANTING

One of the most effective means of arousing interest in forest land and in its protection against fire is to encourage owners of brush or worn out pasture land to plant a few acres to trees. These trees should be supplied by the State at a reasonable cost to prospective planters. States like New York and Pennsylvania are already distributing millions of trees each year to prospective planters, and both of these States are planning to double their output in the next few years. The demand cannot be met with the present nursery capacity. Maine has a small nursery with a capacity of 200,000 trees a year, enough to plant about 200 acres. This is not enough even to meet the present demand and would be entirely inadequate to meet the larger demand which is certain to come. Means should be provided for increasing the capacity of the present State nursery, for the establishment of another nursery, or else for the contracting of a supply of young trees at a reasonable price from one or more of the commercial nurseries in the State.

CREATION OF FOREST FIRE DISTRICTS

In those portions of the State outside the Maine Forestry District where forest land makes up a good proportion of the town or towns, and where for one reason or another it is not given protection deemed reasonable by the State Forest Commissioner, it should be within the power of the Commissioner to establish forest fire districts in which the prevention and suppression of forest fires would be administered by the State organization. The advisability of the creation of such districts might be called to the attention of the Commissioner by petition of owners of more than 50 per cent of the forest land, or he could take action upon his own volition in cases where information coming to him made it seem desirable. In New York State, fire

districts are not created unless the region involves 75,000 acres or more of fairly contiguous timberland. In order that the local people may not lose their sense of responsibility in the prevention of forest fires, it seems advisable that one-half of the forest fire suppression costs incurred by the State in any forest fire district created should be billed back against and collected from the town or county in which the fire occurs. Some states bill such costs against the town, others against the county. When they are billed against the town, the fact that a forest fire is a serious proposition is impressed upon the local people because they are obliged to pay part of the bill in taxation; on the other hand, it is often the fisherman from the city or a non-resident smoker passing in an automobile who is responsible for setting a fire, and it may accordingly be more equitable to charge back one-half the cost of suppressing the fire against the county in which the fire occurred rather than the town. This will also serve to distribute the cost over a larger area and thus not be so burdensome to any one town.

ASSOCIATIONS OF CAMP OWNERS

Summer camps are already numerous in the State, and promise to become more so. They are usually located in the woods around lakes. Their investment in buildings and equipment makes protection against fires of considerable importance to their owners. A well directed effort would probably bring about the organization of the owners around each lake into a group for their mutual protection against fires. At a relatively small expense to each owner, a gasoline forest fire pump and hose could be purchased which could be mounted on a boat and thus be available for protecting both buildings and woods. It seems worth while for the State Forest Commissioner to take the lead in an effort to bring this about.

MATCH AND BURNING TOBACCO RECEIVERS ON MOTOR VEHICLES

Many forest fires today are due without doubt to the burning match or tobacco discarded by occupants of passing motor vehicles. The State of Maine might well legislate to make the throwing down of lighted matches or burning tobacco a punish-

able offense. Other states have done so. Such a law, however, is difficult to enforce because only rarely are violators apprehended in the act. A law that could more readily be enforced would be one requiring that at the time of sale or resale all motor vehicles primarily designed for travel over public roads be equipped with a permanently attached and conveniently located device for holding burnt matches and burning tobacco of any kind. Such a law would force automobile, truck, and motorcycle manufacturers to equip their product with such a device, and it would practically mean that in the course of a few years all such vehicles in the United States would be so equipped. This would add little to the cost of cars, and though it would not be any guarantee that matches and burning tobacco would not still be flipped out along the roadside, still it would tend more and more to have that effect.

ASSISTING TOWNS WITH EQUIPMENT

Many of the towns are equipped poorly or not at all for fighting forest fires. Fire fighters commonly bring their own shovels, rakes, axes, and similar tools to the fires. Occasionally some are purchased. Some states consider it good policy to assist the towns in the purchase of forest fire fighting equipment such as the tools already mentioned, fire extinguishers, and water pumps of various types. Maine might do so to advantage, confining its initial expenditure in a town perhaps to \$100, providing the town expended at least an equal amount for the same purpose. In addition, one or more engine-driven water pumps with hose, and perhaps a half dozen hand fire pumps, should be kept by the State at centrally located points for loaning upon call to towns hard pressed by stubborn fires. This would be an effective and popular measure.

LAW ENFORCEMENT

On account of the general unwillingness of town officials to apprehend and prosecute local people for violations of the forest fire laws, this duty could be assumed by one or two men in the employ of the forest commissioner, provided there was legal authority for it. At the present, such authority apparently does not exist. This plan is followed in Connecticut and is very effective.

PUBLICITY AND EDUCATION

There is a distinct field in the State for more publicity through the newspapers, radio, and talks before various organizations of men and women, schools, and camps. A series of talks accompanied by well selected lantern slides, should be worked up with the idea in mind that each would reach effectively a different type of audience. As is the case in most states, the schools have been somewhat neglected as a means of implanting the idea of forest fire prevention in the minds of the young people. This is one of the most likely fields for good talks, lantern slides, and perhaps moving pictures. The purchase of an automatic balopticon or projectoscope by means of which the forest fire story could be carried to the schools or to the public in general would be a good move. Massachusetts continually keeps one of these pieces of equipment in operation in schools or in public libraries. They can also be set up for short periods in even more public places such as front windows of banks, sporting goods stores, etc. The many boys' and girls' summer camps in the State should be reached in the same way; a man with a story to tell in an interesting way is certain to meet with a cordial reception. Fishing and hunting clubs offer another means of reaching a class of people who are interested in forest preservation for the sake of preserving fish and game but through carelessness with matches, burning tobacco, and camp fires contribute to some of the forest fire losses. The primary necessity in the education of the public appears to be a definitely organized continuous program and men and money to put it into effect.

NEW LEGISLATION

Some of the measures already discussed will require both legislation and increased appropriations to make them possible and effective. There are other measures which could be taken to reduce the fire risk, such as forcing those who are responsible for fires to pay the cost of extinction, requiring all steam plants operating in or near forest land to be provided with spark arresters, and requiring portable sawmills to clean up brush for 100 feet or so around their setting. Tentative drafts of some laws follow. These are copied in part from those already in force in other states. It is not recommended, however, that additional legislation be sought before it will be well backed by public

opinion or before means in the way of adequate appropriations are provided for carrying out its provisions. Laws that are simply dead letters are apt to become a detriment rather than an aid in the protection of forest lands against fires.

TENTATIVE DRAFTS OF LAWS FOR REGION OUTSIDE THE MAINE FORESTRY DISTRICT

Forest Fire Districts. In regions where contiguous forest, land aggregates 75,000 acres or more, the forest commissioner may, upon petition of the owners of more than 50 per cent of the woodland, or upon his own volition where he deems it necessary, establish a forest fire protective system. In such regions the commissioner may maintain an organization of men and the equipment necessary to prevent and extinguish forest fires.

Payment of Fire Bills in Forest Fire Districts. All salaries and other expenses incurred by the commissioner and his employees in protecting the forests from fire shall be paid by the State.

Rebate by Towns (or Counties). One-half of all expenses incurred by the State in extinguishing forest fires in the forest fire districts, except salaries and expenses of regular employees, shall be a charge upon the town (or county) in which the fire burned.

Motor Vehicles to be Equipped. All motor vehicles operating in the State must (after a certain date) be equipped with permanently attached devices conveniently located to the seats for holding burnt matches and burning tobacco of any kind.

Setting Fires. No person shall drop, throw, or otherwise scatter lighted matches, burning cigars, cigarettes, or tobacco upon or near forest, grass, or brush lands of the State.

Protection on Steam Plants. No device for generating power which burns wood, coke, lignite, or coal shall be operated in, through, or near forest land unless the escape of sparks, cinders, or live coals shall be prevented in such manner as may be required by the forest commissioner.

Recovery of Expenses. Any moneys necessarily expended by the State, a municipality, or any person in fighting forest fires may be sued for by the State, municipality, or person expending the same and recovered from the person causing the fire. Such

actions may be maintained in addition to other actions for damages or penalties and such recovery of expenses may be demanded in the same or separate actions.

Assisting Towns in Purchase of Forest Fire Fighting Equipment. When, in the judgment of the forest commissioner, forest fire suppression will be materially strengthened and a town has need of financial assistance, he may cooperate to the extent of \$100 in the initial purchase of forest fire fighting equipment and \$50 in any one year in the replacement of such equipment, provided that the town in each case expends at least an equal amount for the same purpose. A sum not exceeding \$5,000 may be expended by the State in any one year for the purpose.

SUMMARY OF MOST IMPORTANT MEASURES RECOMMENDED

1. The forest commissioner should have authority, upon petition or upon his own volition, to designate forest fire districts in which forest fire control will be handled by the State. One-half the expense of suppression should be charged back against the town or county.

2. Provision should be made by law requiring motor vehicles to be equipped with permanently fixed devices for holding burnt matches and burning tobacco.

3. The system of fire observation stations should be extended.

4. Poortowns should be assisted in the purchase of forest fire fighting equipment. The State should also maintain at one or two centrally located points fire pumps for loan to towns hard pressed by fires.

5. If legal authority exists, the State should take over the job of apprehending and prosecuting violators of the forest fire laws in the towns.

6. The State nurseries should be increased in size, or provision should be made with commercial nurseries to supply small trees at a reasonable cost.

7. More stress should be laid upon educational efforts, particularly in the schools and boys' and girls' camps.

Table No. 1
Forest Fire Record For Maine

MAINE FORESTRY DISTRICT				OUTSIDE MAINE FORESTRY DISTRICT			
Year	No.	Acreage	Damage	Year	No.	Aereage	Damage
1903	140	200,232	\$761,588	1903	209	6,155	\$183,500
1904	31	6,958	12,665	1904
1905	109	14,737	40,518	1905	33	5,579	23,105
1906	56	7,250	19,488	1906	11	371	1,540
1907	17	2,324	5,257	1907	17	2,200	9,310
1908	127	98,691	361,796	1908	111	43,439	257,020
1909	68	27,083	63,734	1909	89	11,545	32,965
1910	17	267	935	1910	18	581	1,906
1911	127	99,654	298,052	1911	75	11,423	48,303
1912	63	16,198	57,152	1912	36	4,042	14,096
1913	74	9,327	28,477	1913	120	20,887	148,365
1914	105	8,311	14,467	1914	52	7,405	14,840
1915	80	14,474	22,776	1915	76	11,185	55,340
1916	54	8,257	9,460	1916	18	3,359	10,305
1917	19	147	1,334	1917	9	311	800
1918	58	3,820	7,291	1918	21	5,118	70,600
1919	85	4,352	6,305	1919	19	668	2,625
1920	118	34,558	143,752	1920	46	5,245	42,155
1921	250	56,947	404,555	1921	112	11,883	112,560
1922	164	19,198	106,001	1922	52	2,190	8,775
1923	132	62,407	289,845	1923	49	7,932	51,521
1924	158	38,401	101,986	1924	62	1,956	11,802
1925	73	2,328	14,058	1925	38	3,556	28,460
Totals	2,125	735,921	2,771,492		1,273	227,030	1,129,893
23 Year Average	92	32,000	120,500	22 Year Average	58	10,320	51,360

